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ABSTRACT

This study demonstrated the use of self-recorded audiotape to collect data on students' perceptions, attitudes, and use of learning activities in written teaching texts. The process of asking students to respond to questions within the teaching text was straightforward and presented few problems in subsequent analysis. On several indicators considered, such as length of audio recording, comparison of closed-ended responses and identification of constructs, the data collected by self-recorded tape compared favorably with that collected by other methods. Further consideration of this form of data collection acknowledged the limitations imposed by self-recorded tape but recognized attractive features worthy of exploitation. Three forms of learning benefits to the students were identified through this method of collecting data: (1) those related to students' learning from the course; (2) those related to students' learning and development as a person; and (3) those that contributed directly to answering an assignment. The study also found that students' attitudes towards learning activities were often based on the amount of time necessary to satisfy the requirements of the activities, their reaction to the intellectual demands embodied in the activities, their desire to comprehend the material and to understand the author's arguments, and their perception of their learning capabilities. Examples of students' self-recorded audiotape responses are provided throughout. (15 references) (DB)

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MASTER OF DISTANCE EDUCATION

RESEARCH IN DISTANCE EDUCATION

DATA COLLECTION IN DISTANCE-EDUCATION RESEARCH:

THE USE OF SELF-RECORDED AUDIOTAPE

FRED LOCKWOOD

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DATA COLLECTION IN DISTANCE-EDUCATION RESEARCH:

THE USE OF SELF-RECORDED AUDIOTAPE

FRED LOCKWOOD

Deakin University
University of South Australia

This book forms part of IDE806 and UDE606 *Research in Distance Education*, which is a unit offered by the Institute of Distance Education, Deakin University and the University of South Australia respectively. It has been prepared for the *Research in Distance Education* team, whose members are:
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Enrolled students will also receive audiocassettes.

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Fred Lockwood
Dr Fred Lockwood is a Deputy Director of the Institute of Educational Technology (IET) at the UK Open University. His research and publication has focused on aspects of course development and design, especially in relation to in-text activities for students.

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STYLES OF INVESTIGATION

At an early stage in the planning of any research in distance education there will be a consideration of the appropriateness of different styles of investigation and the various data collection methods to be employed. Researchers have identified different styles of research, described their characteristics and offered frameworks within which to judge their appropriateness to investigate particular questions. For example, four dimensions have been identified that characterise the range of research styles available: *inductive–deductive, constructive–enumerative, generative–verificative, objective–subjective* (Goetz & Le Compte 1984). At the extreme poles of these dimensions, qualitative styles of research (for example, interview and participant observation) and quantitative research styles (for example, survey and experiment) can be readily, if somewhat stereotypically, described. Whichever style of research is to be adopted, a decision will need to be taken regarding the precise method, or combination of methods, to be employed.

Adoption of data collection methods

In a recent investigation into the assumptions and expectations of Open University (OU) authors regarding Activities in texts, and a comparison with students' perception and use of them (Lockwood 1989), a combination of data collection methods were employed which included individual interviews, self-completion questionnaires and self-recorded audiotape. (The term *Activity* includes those questions in the text, exercises and self-assessment questions that have become a characteristic of self-instructional texts.) The investigation sought to identify and describe those constructs and relationships that may contribute to theory building and to a greater understanding of student learning in the area. As such, the study would appear close to the *inductive, constructive, generative and subjective* poles of the four dimensions identified above. However, the study drew upon several theoretical frameworks and constituent constructs which, whilst not directly related to authors' assumptions and expectations and students' perception and use of Activities in texts, could contribute to the investigation. These frameworks are known as *orientation to study* (Taylor 1984), *conception of learning* (Säljö 1979), *cue consciousness* (Miller & Parlett 1974), *espoused theory* and *theory in*

use (Argyris & Schön 1974). The adoption of these theoretical frameworks moved the study along each dimension towards the *deductive, enumerative, verificative* and *objective* poles. The study became a mixed mode investigation which combined features of the various dimensions when categorising and interpreting student comments.

During the initial phase of the investigation, a series of unstructured/focused interviews (see Cohen & Manion 1985) were conducted which succeeded in confirming the contribution of constructs identified by other researchers; they also succeeded in identifying a series of constructs associated with students' perception and use of Activities in which students appeared to balance the benefits offered by Activities with the costs their study entailed: a cost/benefit analysis model. Within this initial model, three forms of benefit were identified and termed *course-focused, self-focused* and *assignment-focused* benefits:

- **Course-focused benefits** were those related to students' *learning from the course;* the concepts, ideas and arguments under discussion.
- **Self-focused benefits** were those related to students' *learning and development as a person;* the opportunity they provide for ideas to be explored or reconsidered, previous assumptions challenged and personal interest awakened, developed or extended.
- **Assignment-focused benefits** were those that *contributed directly to answering an assignment;* that provided an opportunity to either think about the issues to be discussed in the assignment or which provided material to be used in it.

A major cost, which pervaded virtually all student comments, was associated with consumed study time; further analyses identified other potential constructs. In one such construct, identified as *degradation*, students reduced or degraded the demands of the Activity by focusing on the product of the Activity (the follow-up discussion, commentary or answer), rather than the process it was illustrating. In a second construct, students, upon reading the authors' follow-up discussion or commentary, immediately discounted their own and adopted those of the author; they were described as displaying undue *deference* to the views of the author (especially when the author's intention was for students to formulate their own views and opinions).

After this initial exploration, undertaken in a natural setting, unstructured/focused interviews concentrated upon students' learning in relation to one unit of an Open University course. A course unit is equivalent to 12–14 hours of study time. It is typically based on a central correspondence text (which incorporates student Activities) supplemented by set readings, radio and television components. Investigations conducted within a natural setting is a style of educational research that is being increasingly supported by educational researchers (see Marton, Hounsell & Entwistle 1984):

> It sets out to identify concepts which describe important differences in the ways in which students learn and study. The specific differences give rise to distinct categories and each category is defined, or delimited, in terms of those extracts from the interviews which together constitute its meaning. In this way other researchers are able to follow similar procedures and then make detailed comparisons between the concepts and categories identified in the various studies. This procedure thus carries the 'hallmark' of scientific research, while not following the methods of the natural sciences. (Entwistle 1984, p.17)

Alternative methods of data collection

Data collection by unstructured/focused interview allows great flexibility in the phrasing and sequencing of questions, and use of neutral prompts, but is limited by the small number of interviews that can be conducted during a period when study is being undertaken. It thus limits the data from which any emergent constructs and their interrelationships can be identified. Employing a team of interviewers to increase the data collected is seldom feasible and raises concerns over interviewer reliability. Extending the data collection period incurs other problems, including an undue reliance upon the memory and recall of students.

In an attempt to increase the amount of data that could be collected as students studied the teaching material, interview questions were presented as open-ended questionnaire items suitable for response in questionnaires or on self-recorded audiotape, and grouped into those that could be posed before, during and after study of it. Those questions related to specific Activities, to be answered during their study, and were interleaved within the unit; that is, within the distance teaching material.

The practice of interleaving questions into the body of distance teaching material and asking students to respond to them in writing as they study had been used within the OU during several Developmental Testing exercises (Henderson *et al* 1983), and reported upon more fully earlier (Nathenson & Henderson 1980). These 'feedback questions' allowed students to respond to particular questions immediately prior to, during and after they had studied that material. Nathenson and Henderson remark upon the success of this data collection strategy in obtaining detailed information on actual teaching material and student reaction to it without resorting to an individual interview or reliance upon memory when completing a later questionnaire.

Unfortunately, a review of the literature located only isolated references to similar practices involving the use of self-recorded audiotape to collect student reactions. In a project at Gippsland Institute of Advanced Education, comments on a student's assignment were communicated by the tutor on audiotape, at the time of marking rather than in writing, with an invitation for the student to reply on tape (Evans 1984). The aim was to provide a personal interchange of information similar to that occurring in a conventional tutorial where a student's performance was under discussion. An evaluation of the project involved telephone interviews with sixteen students and revealed that many students valued the opportunity to enter a dialogue, that few practical problems were encountered by students in recording a response, and that the reaction to the use of a tape was extremely positive and favourable. Evans noted the potential of audiotape usage in similar contexts and remarked 'yet as a form of communication about student's performance they have been little used' (Evans 1984, p.108).

More recently, at the University of Sussex, UK, two researchers planning the 'piloting' of a distance teaching course designed for teachers of English in Sierra Leone, invited teachers to provide self-recorded comments on audiotape (Kaikumba & Cryer 1987). The description of the investigation provided by Kaikumba and Cryer indicates it could be regarded as a Developmental Testing exercise on materials to inform their revision prior to implementation. It was not conducted in Sierra Leone but with members of the target population who were visiting the United Kingdom.

The researchers wished to obtain information on teachers' understanding of course content as well as its reception and operation in a natural setting; a setting unconstrained by teachers' abilities with English grammar, syntax and punctuation. However, they recognised that planning such a study, amongst teachers studying at a distance, posed major problems regarding travel, time for data collection and associated costs. Their solution was to contact potential participants by telephone and, if they agreed to take part, post them a copy of the teaching material, a blank audiotape and a covering letter explaining how they should record their reactions, comments and suggestions. They were aware that the teachers were 'effectively interviewing themselves' and further remarked that this form of data collection 'does not appear to have been previously noted in the literature' (Kaikumba & Cryer 1987, p.59).

Their findings, although based on only seven participants, were extremely encouraging. All but one appeared to be relaxed, uninhibited and enthusiastic, with their tone and expression helping in the interpretation of comments.

Contribution from interviews, tapes and questionnaires

The interview, guided by an interview schedule, recorded on audiotape and subsequently transcribed prior to analysis, was judged an appropriate data collection method by which to explore students' perception and use of Activities in OU texts. This data collection method provided a series of worthwhile benefits which would enable the interviewer to:

1 establish a rapport with students (putting them at ease prior to the interview);

2 be sensitive to students' verbal and non-verbal cues (anxiety, unease/interest, enjoyment, enthusiasm);

3 identify and pursue emergent factors (consistent with the process of progressive focusing);

4 adapt to developments during the interview and types of response (clarify comments and resolve misunderstandings);

5 supplement comments with other evidence (annotated texts, files, notes); and

6 ensure the same question was posed to all students and answers/reactions obtained (cassette tape providing a permanent record).

It would not be possible to enjoy these benefits when collecting data by questionnaire or by tape. Whilst the completion of questionnaires was common amongst OU students the practice of self-recording on tape was not. However, all students would be familiar with audiotapes from their OU studies. Furthermore, University surveys have revealed that over 95 percent of students either own or have access to a cassette tape recorder (Grundin 1985).

In addition to freeing students from any restriction imposed by handwriting, the use of a cassette tape would enable them to respond freely to the questions posed and talk whilst referring to the unit and personal notes. The data collected by tape and questionnaire would be unable to satisfy points (1) to (4) above but would:

(a) increase the evidence available for analysis, thus, enabling previously identified factors to be confirmed or refuted;

(b) enable data to be collected from students whilst a series of interviews was being conducted, saving time and travel costs;

(c) allow students to decide the most convenient time and place for making a response, such as the precise moment when Activities had been attempted rather than a day or two later;

(d) eliminate the possibility of leading questions and non-verbal cues that may be inadvertently transmitted to the student;

(e) leave the question(s) open to the students' interpretation rather than being channelled by the interviewer; and

(f) avoid any feeling that a constant dialogue be maintained; the student would control the speed and focus of the data collection.

Although attractive, these advantages could be countered by potential disadvantages, even assuming the questions posed were unambiguous and directions for response were clear. Using audiotape and questionnaires for data collection could:

1 result in poor quality recording which could detract from its intelligibility or produce indecipherable written questionnaire responses;

2 prevent any opportunity to seek clarification of any comments, or to explore emergent concerns through neutral prompts or subsequent questions; and

3 relinquish control of data collection making it impossible to curtail or redirect comments.

The above concerns were recognised and monitored during analysis and interpretation of the data collected.

Mechanisms of data collection

Three sub-samples of the OU course population were identified:

1 N = 30 students to respond via audiotape;

2 N = 30 students to complete a questionnaire;

3 N = 12 students to be interviewed (recorded on audiotape).

Subsamples 1 and 2 were selected at random from the course population. Subsample 3 was selected from a listing of those students living within a 75-mile radius of the OU who possesssed demographic characteristics representative of the course population.

All students were contacted by telephone and invited to participate with approximately 5 percent declining the invitation; withdrawal from the course or pressure of work were the reasons given. Shortly after the telephone conversation, and prior to their study of the OU teaching material, sub-samples 1 and 2 were sent a package containing:

(a) a covering letter (a copy of the letter sent to those students replying on tape is provided in Appendix A);

(b) three questionnaires:

- Green (to be completed prior to study of the unit);
- Yellow (to be completed whilst studying the unit);
- Pink (to be completed after study of the unit);

(c) a copy of the OU unit (with yellow questionnaire sheets interleaved);

(d) C90 cassette tape (for responding on tape); and

(e) a prepaid envelope.

The interviews with students in sub-sample 3 were conducted over a two-week period at times and places mutually agreed during telephone

contact initiated, primarily, by students. Students were asked to make contact when they could anticipate completing their study of the unit so that the interview could be conducted as close to the completion of the teaching material as possible.

Indicators of comparability

If the structured interview is taken as a baseline, the other data collection methods may be compared with it. The advantages provided by audiotape and questionnaire, as listed above, were evident during analyses and far outweighed the potential disadvantages that were identified.

In each case, the self-recorded tapes proved to be of good technical quality and posed no problems in their interpretation; replies were full and detailed. An indication of the amount of evidence provided can be gauged by comparing the range of recorded tape times and mean recorded tape times with those obtained from the twelve interviewees.

Figure 1 Comparison of recorded tape times

N	Tape time range	Tape time mean
Tape (N=16)	16—65 minutes	36 minutes
Interview (N=12)	35—90 minutes	56 minutes

Recordings within a range of 16–65 minutes, with a mean recording time of 36 minutes, represents a substantial amount of data, especially when generated on one's own in response to list of printed questions.

Evidence from 'stop and start' tape noise, coupled with changes in voice pattern, indicated that students had followed the instructions in the covering letter and recorded their response to individual questions on the yellow sheets (interleaved within the unit) at the time they had just completed the corresponding Activity.

Very few students displayed any self consciousness at the start of recording (such as using awkward and stilted phrases). Within minutes all but one had adopted a relaxed, informal, conversational style. Indeed, at times many students adopted a conspiratorial tone. Only one student appeared to have written answers to each question prior to recording them on tape.

There were occasions where clarification would have been useful and where neutral prompts could have been used to elicit further information. However, this did not detract unduly from the quality of the data provided. In contrast, replies on questionnaires were generally brief and cryptic. No problems were encountered in deciphering handwritten responses to questionnaire items.

Relinquishing direct control of the data collection, whilst evident in some tapes where students commented at length on peripheral issues, did not appear to detract from the evidence that was actually provided. It did prevent such episodes being curtailed and redirected, but other questions were still addressed.

The dilemma associated with response rates did materialise. Of the thirty students in sub-sample 1, only sixteen returned tapes; a response rate of 53 percent. (Five students returned blank tapes with apologies and one, suffering from laryngitis, resorted to a self-completion questionnaire format—inflating the response rate for that sub-sample.) This response rate could have been improved by sending reminder letters. However, it is likely that any subsequent data would have been compiled by students several days, if not weeks, after study of the unit which was judged likely to adversely affect its value. All analyses were conducted with data provided voluntarily. The response rate for students in sub-sample 2 was 83 percent.

Confidence in categorisation

The interview, with the opportunity to clarify particular comments and through neutral prompts to explore aspects of student learning, should provide the ideal data collection mechanism and one that would give the analyst maximum confidence during interpretation of the data and categorisation. The actual purpose of the preplanned questions, and subsequent questions, being to elicit data which could be used to identify and describe those factors influencing a students' perception and use of Activities.

Previous comments regarding the quality of response from audiotape and questionnaire would suggest that of the three data collection methods the questionnaire, characterised by relatively brief and cryptic comments, would provide data from which the least confident categorisations would be obtained, with data from audiotape better but inferior to that obtained

by interview. However, a comparison of findings challenged these initial assumptions. Although a greater proportion of students were categorised with evidence collected by interview than by questionnaire, the expected trend for the superiority of the interview to audiotape and audiotape to questionnaire was not confirmed. Whilst it was confirmed for some constructs, it was countered by others.

The questions on the yellow sheets, those interleaved within the teaching material, were to be answered at the time the corresponding Activity was attempted. The questions were Activity specific and contained both closed and open-ended questions. An inspection of 'YES/NO' items to specific Activity demands revealed a remarkably similar level of response by interview, audiotape and questionnaire and suggests, for these questions at least, that the method of data collection did not significantly influence the pattern of response.

Contribution of different data collection methods

The series of interviews was invaluable during the initial phase of the research in identifying elements within the cost/benefit analysis model. However, evidence obtained from the two other data collection methods refined the original constructs and identified another. The three constructs that were refined on the basis of data from the difference data collection methods were termed *study time savers–study time spenders, degradation–completion,* and *deference–confidence.* The new construct that was identified was termed *inadequacy–efficiency;* a brief description of these constructs is given below.

Study time savers–study time spenders

Some students, in realising the benefits offered by Activities, were no more concerned about the study time that Activities consumed than other elements in the unit. They spent as long on the Activity as they felt necessary to satisfy the requirements of it and their own needs. These students, identified as *study time spenders,* may be regarded as at one end of a continuum with *study time savers* at the other. The following comments are typical of *study time spenders*:

> *I don't have all the time in the world but I do try and spread my time over all the bits in the course—including the Activities. I spend as long on them as I need to make sure I understand what it's all about.*

Sometimes I take longer than they say, sometimes shorter ... I don't really clock watch.

I generally enjoy the Activities and often spend more than the 5–10 minutes that they say ... after I'd done the one on option choices I chatted to my two sons about option choices 'cos there was a school meeting coming up where we'd be discussing what subjects they would be taking next year—I spent a lot of time on that.

For many students, the study time that Activities would consume outweighed the benefits they might offer; students felt they didn't have the time to respond to them. These students may be regarded as at the other end of the continuum and were identified as *study time savers*. The following comments are typical:

I don't do them because I just don't have the time ... if I did I probably wouldn't have time to do the readings and [Tutor Marked Assignments] *TMAs.*
I just read [the Activity] *through and look to see what the author has said 'cos, you know, it's a way of saving time ... I've got to cut corners if I'm going to cope with this course, and that's one way of doing it.*

Degradation–completion

One of the expectations of authors was that Activities would encourage students to think about the course materials by responding to the various intellectual demands embodied in the Activities. Some students did respond to Activities in this way. Indeed, *completion* of Activities along the lines suggested by the author may be regarded as one end of a continuum with *degradation* of Activities at the other.

The following comments are typical of a student who completes Activities:

I always do them and do them properly 'cos they're an important part of the course. If the author wants you to compare one view with another, think about the argument ... sort out your ideas or whatever it's because it's an important part of studying.
It's possible to skip the Activities, but if you do you're missing a great opportunity to think through your ideas and sort them out ... to analyse things, offer your interpretation.

At the other end of the continuum students reduced these intellectual demands or degraded the activities in one of two ways. Students degraded Activities when they reduced the intellectual demands of an Activity thus making it simpler than intended and less time-consuming than expected. The demands may be recognised by the student but substituted by less taxing ones. (This form of *degradation* becomes apparent during students' discussion of individual Activities.)

> *They're wanting you to analyse the argument in the reading—I haven't got time for that so I just read through to get an idea of what they're saying and thought about it before continuing.*
> *It asked you to compare the different views and assess the strengths and weaknesses of the two ... I didn't bother ... I just read them and decided which one was closest to my own view and why.*

The actions and comments of other students indicate that despite the wording and explanation of Activities, they were interpreted to require much simpler replies than intended. For example, an Activity that asked students to evaluate an argument, considering a series of points in turn and the extent to which they were supported or refuted was reduced to a memory list:

> *... I tried to spot two or three important points and remember them.*

Another student interpreted the Activity as an exercise to confirm initial beliefs:

> *I rely on commonsense—if what they say makes sense I'm prepared to believe it and learn it; if not, I just ignore it.*

Students also collapsed the question(s) and associated follow-up comments that constituted the Activity into a continuation of the text, focusing on the product of the Activity rather than the process. Students made little or no attempt to formulate a response:

> *I won't actually get down to doing it* [answering the question in the Activity] *because I have got a better comment underneath. We mere mortals and undergraduates know that you blokes have got the best comment so we take yours. You might as well spend ten minutes learning that as sorting your own out.*

I just read the question and then the comment ... because you know, it's one way again of just cutting down the time and it's all written in the comment anyway so I can't really see the point of slogging through it.

Deference–confidence

A student's desire to comprehend the material being presented, to understand the ideas or arguments offered by the author, is a fundamental part of study. In academic areas new to a students, it is not unreasonable to assume that students will credit an author with experience and academic competence superior to their own and, in the absence of other authorities, will accept authors' interpretations, analyses and conclusions.

However, the authors of teaching material maintained they were not merely providing academic content and opportunities for students to check their understanding but opportunities to challenge previous conceptions, to engage with the material and, above all, to think for themselves. The fostering of learner independence was a major objective of authors and the Activities a mechanism to realise it.

Activities that merely required recall, comprehension or limited interpretation provided little opportunity for students to formulate a response that could differ legitimately from the author. However, other Activities provided scope for students to formulate responses that could differ significantly and which were equally valid. Many students grasped these opportunities and had confidence in their own response. This *confidence* may be regarded as one end of a continuum with *deference* at the other. The following comments are typical of a confident student:

... I have got my own opinion about it—he has got his. Then I will probably think, 'Well, why did he get his and I get mine the way it is?' ... if I think that mine are just as valuable as his comments then I will keep them ... don't just say, 'Oh, that's it, I have got it wrong!'
... It's not a case of right or wrong but the balance of the arguments one wants to take and the emphasis you want to give. Quite often I disagree with the way the author has argued his case—stressing some points and omitting others ... so I am just not prepared to accept what he says unless I can see the strength of his argument against the alternative.

At the other end of this continuum students displayed undue deference to authors' comments at the expense of their own. Such students were

judged to incur a cost to their learning when they attempted an Activity and, upon discovering that their response to it differed from the authors, abandoned their own response and adopted that of the authors. For example, such students may explain:

> *If (my own answer) differed I usually choose the author's and changed mine to suit ... I usually end up taking the author's answers in place of my own ... when it comes to revision I would not remember what was right and what was wrong.*

Others may explain their reaction when their response is different from that of the authors:

> *I feel rather unnerved ... I sort of put it down as though I have put it in my answer when in fact I have not. It is a childish tendency to think 'I have failed. Quick, I must put that down and pretend I had it' and I do that. I can see myself doing that ... because I am prepared to accept the person who is giving the comment is giving me some sort of 'right answer'.*

Inadequacy–efficiency

Some students regarded the Activities as a central and integral part of the teaching material. Others, whilst not sharing this perception, did regard them as a valid part of the teaching material and believed authors had included them for legitimate reasons. The following comment is typical:

> *I'm not saying what's done in the Activity is totally irrelevant, and obviously it isn't or they wouldn't have bothered putting it in anyway, but for me time is of the essence...*

For some students the decision to ignore Activities, skim them or to complete them less thoroughly than was suggested, was regarded as a legitimate strategy if they were to perform as effective and efficient learners. They believed that they were expected to study selectively since the course materials were a resource for them to draw upon. Students' perception of themselves as efficient learners, as a result of their selective study of course materials, may be regarded as one end of a continuum with feelings of guilt and *inadequacy* at the other.

The following comments are typical of those who believed they were studying with *efficiency:*

> *There's so much in the course that one has to be selective ... I am sure they don't expect you to read every word and do every Activity ... part of being an undergraduate is deciding what areas to follow up, what Activities can be skipped and those you need to do—using your time to best effect.*
> *I don't think you're expected to do all the Activities ... they are there merely to help you if you need them.*

At the other end of the continuum, students acquired feelings of *inadequacy* as a result of adopting a selective strategy towards their study in general and Activities in particular. Such students were aware of the potential role of Activities in their study but made remarks like:

> *Oh,* [the Activity] *aids your understanding, it certainly does ... and I'm a fool to myself for not doing them.*
> *I thought they were all worthwhile, it's a great shame that I just haven't got the time to give to them.*
> *I'd taken the lazy way out and not done it* [an Activity] *... I'm beginning to think I'm rather lazy ... it's me that isn't taking advantage of the Activities.*

When students were asked what their reactions would be if Activities were omitted from future units, many said they would feel relieved (a word repeated by many students); it would remove the feeling of guilt or inadequacy they experienced when skimming over or ignoring them.

Comments on tape suggested that whilst the benefits provided by Activities could be regarded as dichotomous—students availed themselves of them or they did not—the costs could be regarded as being perceived on a series of constructs better described as continuous. For example, initially it was believed that an implication of a student's lack of response to an Activity was that the student could display undue deference to the comments of the author–at the expense of their own views and arguments. However, analysis of tapes indicated that some students, rather than displaying deference had a confidence in their own views and arguments and would challenge those of the author. It was evident that the construct could be regarded as a continuum rather than a dichotomy.

It was evidence from questionnaires that alerted the author to the presence of a cost associated with skipping Activities; that students could acquire feelings of guilt and inadequacy as described above. Subsequent re-analysis of data in interviews and on tape confirmed the presence of this construct.

CONCLUDING COMMENTS

During this research study into students' perception and use of Activities in written teaching texts, the collection of data by self-recorded audiotape was demonstrated. The process of asking students to respond to questions interleaved within the teaching text was straightforward and presented few problems in subsequent analysis. On several indicators considered, such as length of audio recording, comparison of closed-ended responses and identification of constructs, the data collected by self-recorded tape compared favourably with that collected by other methods. Further consideration of this form of data collection acknowledged the limitations that self-recorded tape imposed but recognised several attractive features worthy of exploitation.

Collecting data by self-recorded tape greatly reduced the financial cost of data collection and the research time that was devoted to it—factors often important to individual researchers restricted to collecting data within a particular time period. The data collection method also reduced researcher effect, that is, a researcher inadvertently influencing a respondent's comments through verbal or non-verbal communication. For example, during a preliminary phase of the present research, interviews were conducted and evidence recorded in note form during the interview. The practice of breaking eye contact to record notes about student remarks served as a cue to the student to curtail that remark and pause until the note was complete and until eye contact had been re-established. Although this mechanism was efficient in controlling the pace of the exchange, it effectively identified those aspects of the interview that the researcher judged to be most important. The danger is, of course, that in an attempt to be cooperative the student may make further comments on this topic at the expense of others he or she may have made, thus distorting the exchange.

The list of questions that constituted the 'interview schedule' demarcated the scope and depth of the data collection but control of the exchange, in terms of pace and focus, was relinquished. Initially, this had been regarded as a potential weakness of the data collection method. However, during analysis it appeared that those responding on tape adopted a relaxed conversation, pace and often adopted a conspiratorial tone when explaining particular personal or delicate points. On numerous occasions the intonation associated with comments, and pauses between them, greatly enhanced the interpretation that was made. Indeed, the solitary conditions under which the tapes were recorded appeared to encourage a degree of openness and frankness that was less apparent in face-to-face interviews. Indeed, the sentiments that were communicated in the tone that was adopted and the emphasis that was given to comments by hesitation and pauses, raises the question of whether a simple transcript can adequately represent the data collected. An extract that illustrates this question is reproduced in Appendix B and also provided as part of Audiotape 2, side 2, 'Using Self-Recored Interviews in Distance Education Research'. A comparison of the data provided by the two different media is dramatic with the intonation present in the tape contributing significantly to an interpretation of the evidence provided.

A major strength associated with self-recorded tape is that comments can be made at the most optimum time as decided by the respondent, not waiting until some face-to-face interview is arranged when the immediacy of the response may be lost. Indeed, every student who participated in the research study responded to every question posed and addressed the issues involved even when this extended over two weeks.

The weaknesses or restrictions associated with the self-recording of tapes, although important, appear to be relatively few. The respondents were effectively interviewing themselves; there was no opportunity to include neutral prompts to clarify particular points, to redirect student comments or to curtail irrelevant comments. It placed great reliance upon the quality of the instructions given to respondents and to the questions that constituted the interview schedule.

In the context of the present study, the three different data collection methods—interview, questionnaire and self-recorded tape—complemented each other and contributed to a better understanding of student learning. Future studies could explore the use of self-recorded

tape and the extent to which it can complement or replace other data collection methods in different contexts, such as where the cost or logistics of conventional interviews is prohibitive or where the immediacy of learner reactions and comments is of paramount importance. For example, during the developmental testing (see Henderson *et al* 1983) and evaluation of distance learning materials (see Woodley & Kirkwood 1987) it is common to rely upon questionnaire responses and annotated drafts, occasionally supplemented by telephone interviews or group meetings. The provision of self-recorded tape, as a data collection method, would allow the effectiveness by which ideas, concepts and relationships were taught to be assessed in response to specific questions posed at strategic points in the teaching material.

In more fundamental research contexts, attitudes, beliefs, values and opinions could be explored as learners respond immediately to questions that arise. Once initial contact has been made, and participants have agreed to respond by self-recorded tape, extracts can be recorded over an extended (or concentrated) period that corresponds to the focus of the investigation. In such circumstances it may be difficult, if not impossible, for an interviewer to be present to explore and record such exchanges.

APPENDIX A: COVERING LETTER

Dear E200 student,

Thank you for agreeing to take part in this research project. As I explained on the telephone, I'm exploring a range of questions about studying with the OU in general and E200 in particular. A series of questions refer specifically to Unit 10 'Control and Choice in the School'–with questions on different aspect of the unit and especially the Activities. I estimate that it shouldn't take up more than one hour of your time spread over a week or so. The list of questions that I mentioned are attached together with a copy of Unit 10 and a C90 cassette tape. The notes below should explain how I've arranged things and what I'd like you to do. The questions have been divided into three groups.

Group A Those I would like you to answer BEFORE starting to study Unit 10 **(on green paper)**

Group B Those to answer DURING your study of Unit 10 **(on yellow paper)**

Group C Questions to answer AFTER study of Unit 10 **(on pink paper)**

The questions on green and pink paper (Group A and C questions respectively) have been collated together and stapled like a typical questionnaire. However, those on yellow paper (Group B) have been interleaved with the Unit because I'd like you to answer them **as you study the unit.** The C90 tape should give you plenty of tape time to answer the various questions.

To avoid any possible confusion I would be grateful if you would adopt the following procedure:

1 When you start recording say **who** you are and **what** you are doing. Something like: 'This is John Smith answering the questions on the green sheet.'

2 Repeat the question number and read out the actual question **before** you start to talk about it. Something like: 'Question No. 1. What was the reason, or reasons, that prompted you to study with the OU ?' (Pause and then give your reason(s).)

(I know many people feel a little self-conscious when they are taping themselves. However, remember it isn't an audition and I'm the only one who is going to hear it. Just imagine that you are talking to me–as though I'm sat by the side of you.)

3 When you have finished answering all the questions from Group A (green sheet) just say that you have finished. Something like: 'That's the end of my comments on the questions on the green sheet.'

4 Answer the questions on the yellow and pink paper in the same way—giving the question number, repeating the question and then commenting on it.

The reason for supplying you with an extra copy of Unit 10 is that I would like you to study it **in exactly the same way as normal.** If you write on a Unit, underline, annotate, make notes, scribble on it or whatever, please do so in exactly the same way as normal; attaching a copy of your additional notes if appropriate.

A number of the questions relate to the Activities in the text. I'm particularly interested in both your replies to the questions and any notes, answers, or comments you may make when answering them—so long as this is your normal practice and not for my benefit!

When you have finished answering all the questions please post the Unit, together with the green, yellow and pink question sheets and the cassette tape to me in the prepaid envelope provided. If you want to retain the notes, annotations or whatever you wrote on the Unit provided please transfer them to your copy of the Unit.

It may be some time before I am able to complete my analyses of the information you provide and to combine it with other information I have collected. However, please be assured that I will send you a summary of my findings so that you can see the result of your contributions.

I look forward to hearing from you.

Yours,

Fred Lockwood
Lecturer in Educational Technology

APPENDIX B: EXAMPLE OF DATA COLLECTED BY SELF-RECORDED TAPE

Christine is 28-years-old, married, and is employed as a teacher of shorthand and typing in the private sector. She does not hold a Teaching Certificate but an equivalent Business Education Council (BEC) qualification.

Christine has successfully completed the following Open University Courses: A101, *Arts Foundation Course*; D102, *Social Science Foundation Course*; and E200, *Contemporary Issues in Education*.

Christine was able to identify various reasons why Activities had been included in the teaching material:

> *... some of the Activities are designed to improve the students' analytical abilities, some of them are designed to provoke thought, to provoke questions about certain topics, some of them force one to focus on a particular aspect that's been dealt with in the unit.*

For Christine, the benefits were *course-focused*: those which clarified material and contributed to a greater understanding of the course material.

> *I'd like the Activities to crystalise certain points, to perhaps prompt thoughts on key issues or key concepts, to ask pertinent questions . . . towards clarifying things I've read.*

Unfortunately, the benefits provided by Activities were accompanied by a series of implications—a point acknowledged by Christine in her comment:

> *I think that they should contribute to my study of the unit if I tackled them—I don't always.*

A major implication of completing Activities was the time they consume:

> *I often find I'm trying to cut corners as far as my studying is concerned and ignoring Activities where an answer is printed afterwards is a way of saving time . . . I'm being very frank about that.*

A consequence of this strategy was the *degradation* of Activities—especially those that were more demanding. For example, Christine commented:

> *If it's one that requires me to read an extract, and precis it, then I probably won't do it. I'll probably read on and see what the author of the unit has done.*

Indeed, detailed analyses of individual Activities revealed this to be the case. Activities that required a simple, quick response were generally completed but those that were more demanding were degraded.

There was no evidence that Christine displayed undue *deference* to comments from authors. When asked what her reaction was to discovering that her response to an Activity was different from the authors, she remarked:

> *I don't get too worried about that any more. I think there are different ways of interpreting information . . . not all of them are correct and not all of them are wrong.*

This, and similar comments, are consistent with Perry's description of conventional students' conception of knowledge and the development from absolutest to relativistic conceptions.

An additional implication for her study was the generation of feelings of *inadequacy* as a result of her method of study. Christine made several references to her *inadequacy* as a student and to being, she believed, lazy.

> *... I'd taken the lazy way out and not done it* [an activity]. . . *I'm beginning to think . . . I'm rather lazy . . . it's me that isn't taking advantage of* [them].

Towards the end of the tape Christine spoke at length about her feelings of inadequacy. She appeared to have an image of an ideal student who would study all the components, complete all the Activities. Her inability to meet these expectations prompted the comment:

> *I've got quite mixed feelings about these Activities. I'm not really the sort of person who's going to make an ideal OU student . . . I'm looking to being given the answers rather than wading my way through these Activities trying to get the answers myself . . . am I going to be as good as I would like to be? Am I going to be able to fulfil my ambitions ?*

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